REMARKS

Reconsideration of this application is respectfully requested.

In the Office Action the Examiner rejected claims 1 and 2 under 35 U.S.C. § 102 (a) as being anticipated by Anderson et al. (US2003/0017832A1). In addition, the Examiner rejected claims 3-6 under 35 U.S.C. § 103 (a) as being unpatentable over Anderson et al. The rejections are respectfully traversed.

The present invention is directed to a method of enhancing signals at a mobile telecommunication system. The system comprises a base station and first and second receivers within a reception zone of the base station. The method includes receiving a plurality of first signals at the first receiver, the first receiver having a good quality communications link with the base station. The method also includes receiving a plurality of second signals at the second receiver. The method further includes correlating the received signals from both receivers to provide an estimated correlation, selecting areas from within the estimated correlation, creating a replica of unwanted signals using the selection and the plurality of first signals and enhancing the plurality of second signals by eliminating the replica.

The present invention addresses the problem of errors in received signals in a mobile telecommunications network caused by the operating environment, such as local infrastructure, for example, buildings, and other geographical features such as terrain and trees. These effects reduce the efficiency and performance of the telecommunications cell. As shown in Figure 1 of the present application, the first receiver 20 has a good quality communication link with the base station 10 because it is positioned in the cell to have a direct line-of-sight with the base station. As further shown in Figure 1, the second receiver does not have a clear line of sight and, therefore, does not have a good quality communication link with the base station. The signals

received by the first and second receiver are both input to a correlator to correlate the signals. The output from the correlator is displayed as a plot of propagation delay against frequency shift for the received signals. Areas of the signal map are selected to form a replica signal which is then used to enhance the original signals received at the second receiver.

Anderson et al. is directed to a method for locating a mobile transmitter. The method includes producing a set of cross-correlation values associated with corresponding time- or frequency-difference-time-of-arrival estimates. The cross-correlation values are derived from the cross-correlation of a reference signal (a copy of a signal received at a first antenna) and a cooperating signal (a copy of the same signal received at a second antenna). An optimal cross-correlation value is selected from a subset of cross-correlation values that corresponds to the most likely time- or frequency-difference-time-of-arrival estimates.

In contrast to the present invention, Anderson et al.'s disclosure of method for locating a mobile transmitter does not disclose a method of enhancing signals received at a second receiver by eliminating the replica of unwanted signals created by using the selection of areas within the estimated correlation between the signals received at first and second receivers and the signals received at the first receiver, as recited in claim1.

The Examiner alleges that Anderson discloses receiving a plurality of first signals at the first receiver where the first receiver has as good quality communications link with the base station, by citing paragraph 359, section 1, paragraph 337 and paragraph 246. Applicant notes that the Examiner referred in several instances to a "sections" of paragraph 359, when there is no such sections. It is presumed that the Examiner is referring the claims, although it is unusual to rely on the claims of a prior art reference as a basis for a rejection as opposed to the specification. Nevertheless, none of the cited paragraphs, nor claim 1, relied upon the Examiner, disclose a

receiver specifically having a good quality communications link with the base station. The only reference of signal quality is paragraph 246, which indicates that the reference signal has the highest signal-to-noise ratio. However, the signal-to-noise ratio of a reference signal is different from the quality of the communication link with the base station of the signal. Moreover, paragraph 246 refers to the signal-to-noise ratio of mobile transmitter signal, not the signal between a receiver and a base station.

In addition, there is no disclosure in Anderson et al. of first and second receivers. As noted by the Examiner, paragraph 337 discloses pairs of signals being transmitted to first and second antennas. However, the first and second antennas are both connected to a single receiver. As paragraph 337 describes, a cross correlation of pairs of received signals is performed, but it is performed on the pairs of signals received by two antennas at the same receiver. Anderson et al. is correlating signals at a single receiver because the method is directed to locating a mobile transmitter.

In contrast, as recited in claim 1, the present invention is directed to enhancing signals received at a second receiver based on the correlation between signals received at that second receiver and a first receiver that is at a different location from the second receiver. Therefore, for this reason alone, Anderson et al. does not disclose steps a)-f) of claim 1.

In relation to step d) of present claim 1, the Examiner asserts that claim 21 of Anderson et al. discloses selecting areas from within the estimated correlation because step b. recites "determining a most likely range of TDOA and/or FDOA estimates".

It is submitted that, as claim 21 in Anderson et al. is directed to "a method of locating a mobile transmitter", the requirement for "determining a most likely range of TDOA and/or FDOA estimates" is used to decide on a possible range for the location of the mobile transmitter

and not for selecting areas from within the estimated correlation (step d) of present claim 1) and then using those selected areas for creating a replica of unwanted signals using said selection and said plurality of first signals (step e) of present claim 1).

It is noted that the Examiner asserts that Anderson et al. discloses step e) of present claim 1 at paragraph 0247 where it is stated that "the wireless location system mitigates multipath by first recursively estimating the components of multipath received in addition to the direct path component and then subtracting these components from the received signal" and "the wireless location system models the received signal and compares the model to the actual received signal and attempts to minimize the difference between the two using a weighted lease square difference".

In neither the first instance (the multipath components being subtracted from the received signal) or the second instance (the modeling of the received signal and subsequent comparison to minimize the difference between the modeled signal and the received signal) in paragraph 0247, is there any disclosure of creating a replica of unwanted signals using said selection and said plurality of first signals (step e) of present claim 1).

In view of the above, it is submitted that present claim 1 is novel over the disclosure of Anderson et al. as there is no teaching or suggestion of all its features.

Claim 2 is dependent on a novel claim 1 and, therefore, the combination of the features of claim 1 and claim 2 is also novel.

Regarding claim 3, the Examiner has stated that Anderson et al. does not specifically disclose the last step f), namely, correlating said enhanced plurality of second signals with said plurality of first signals to produce an enhanced correlation. However, he has asserted that "it would have been obvious to one having ordinary skill in the art at the time at the time the

invention was made to correlate the enhanced second signals with the first signals to have an enhanced correlation since it was known in the art to verify a signal process".

It is not clear what the Examiner means in his statement "since it was known in the art to verify a signal process". The step of correlating the enhanced second signals with the first signals to provide an enhanced correlation is not a verification of a signal process but part of the enhancement of the signals in a mobile telecommunications system. It is, therefore, submitted that claim 3 is non-obvious over the disclosure of Anderson et al.

Regarding claim 4, it is submitted that there is no teaching or suggestion in Anderson et al. of step f) as discussed above and, as a result, there is no teaching or suggestion of any enhanced correlation, nor how such an enhanced correlation could be achieved. It is, therefore, submitted that claim 4 is non-obvious over the disclosure of Anderson et al.

Regarding claim 5, in view of the comments above relating to claim 1, the Examiner is incorrect in his assertion that Anderson et al. discloses a method according to claim 5. Moreover, as the features of claim 5 are the same as the features of claim 3, the comments made above also apply to claim 5. It is, therefore, submitted that claim 5 is non-obvious over the disclosure of Anderson et al.

Regarding claim 6, as the features of claim 6 are the same as those of claim 4, the comments above also apply to claim 6. It is, therefore, submitted that claim 6 is non-obvious over the disclosure of Anderson et al.

In view of the above, it is respectfully submitted that all of the claims in the application contain patentable subject matter and a Notice of Allowance is respectfully solicited.

Respectfully submitted,

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